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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/842,199

04/24/2001

Cheung Auyeung

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05/04/2004

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EXAMINER

RAO, ANAND SHASHIKANT

ART UNIT

PAPER NUMBER

2613

DATE MAILED: 05/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/842,199

Applicant(s)

AUYEUNG ET AL.

Examiner

Andy S. Rao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5-6.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Piccinelli et al., (hereinafter referred to as "Piccinelli").

Piccinelli discloses a method of determining a motion vector for a macroblock of a present image from a previous image (Piccinelli: column 6, lines 54-60), the method comprising: selecting a first set of pixel blocks in the previous image (Piccinelli: column 12, lines 35-52); computing a first difference measure for each of the pixel blocks in the first set of pixel blocks to form a plurality of first pixel measures (Piccinelli: column 12, lines 24-33); determining a first closest matching pixel block having a lowest first difference measure (Piccinelli: column 12, lines 20-25); selecting a second set of pixel blocks in the previous image (Piccinelli: column 12, lines 35-52; column 7, lines 65-67; column 8, lines 1-32); computing a second difference measure for each of the pixel blocks in the second set of pixel blocks to form a plurality of second difference measures (Piccinelli: column 13, lines 1-13); computing a first accurate difference measure for the first closest matching pixel block, wherein the first accurate difference measure is a member of the plurality of accurate difference measures (Piccinelli: column 13, lines 40-55); computing a second accurate difference measure for the second matching pixel block, wherein the second accurate difference measure is a member of the plurality difference measures (Piccinelli: column 13, lines 40-55); selecting the first closest matching pixel block as a origin block when the first accurate difference measure is less than or equal to other members of the plurality of difference measures (Piccinelli: column 13, liners 20-35); selecting the second closest matching pixel block as a origin block when the second accurate difference measure is less than the first accurate difference measure and less than or equal to other members of the plurality of difference measures (Piccinelli: column 13, liners 20-35); computing the motion

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vector using the origin block and the macroblock (Piccinelli: column 12, lines 1-10), as in claim 1.

Regarding claims 2-3, Piccinelli discloses selecting a third set of pixel blocks in the previous image (Piccinelli: column 12, lines 35-52); computing a third difference measure for each of the pixel blocks in the third set of pixel blocks to form a plurality of third pixel measures (Piccinelli: column 12, lines 24-33); determining a third closest matching pixel block having a lowest third difference measure (Piccinelli: column 12, lines 20-25); selecting a fourth set of pixel blocks in the previous image (Piccinelli: column 12, lines 35-52; column 7, lines 65-67; column 8, lines 1-32); computing a fourth difference measure for each of the pixel blocks in the fourth set of pixel blocks to form a plurality of fourth difference measures (Piccinelli: column 13, lines 1-13); computing a third accurate difference measure for the third closest matching pixel block, wherein the third accurate difference measure is a member of the plurality of accurate difference measures (Piccinelli: column 13, lines 40-55); computing a fourth accurate difference measure for the fourth matching pixel block, wherein the fourth accurate difference measure is a member of the plurality difference measures (Piccinelli: column 13, lines 40-55); selecting the third closest matching pixel block as a origin block when the third accurate difference measure is less than or equal to other members of the plurality of difference measures (Piccinelli: column 13, lines 20-35); selecting the fourth closest matching pixel block as a origin block when the fourth accurate difference measure is less than the, first, second, and third accurate difference measures and less than or equal to other members of the plurality of difference measures (Piccinelli: column 13, lines 20-35); computing the motion vector using the origin block and the macroblock (Piccinelli: column 12, lines 1-10), as in the claims.

Regarding claims 4-8, Piccinelli Regarding claims 4-8, Piccinelli discloses computing an absolute difference between each pixel in both the closest matching pixel block and a predetermined pattern of pixels (Piccinelli: column 12, lines 57-63), as in the claims.

Regarding claim 9, Piccinelli discloses computing a squared difference between each pixel in both the closest matching pixel block and a predetermined pattern of pixels (Piccinelli: column 5, lines 62-67; column 6, lines 1-10), as in the claims.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Florent discloses an image processing method and apparatus. Rodriguez discloses motion estimation system and methods. De Haan discloses a method and unit for processing images. Rackett discloses a motion estimation algorithm.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (703)-305-4813. The examiner can normally be reached on Monday-Friday 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris S. Kelley can be reached on (703)-305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Andy S. Rao
Primary Examiner
Art Unit 2613

ANDY RAO
PRIMARY EXAMINER

asr

April 30, 2004